

## SEMICONDUCTOR MANUFACTURING – CLASSIFICATION GUIDELINES

1. The following is a list from the AH-581 to guide classification of machinery and equipment and fixtures in the semiconductor industry.

### **SCHEDULE A1 Machinery & Equipment**

Annealing Equipment	Measuring and Analytical Instrumentation
Annealing Furnace	AUGER
Asher, Dry Resist Removal	EPMA
Atmospheric Pressure Chemical Vapor Deposition (APCVD)	ESCA
Baking	Failure Analysis Equipment (E-beam, Laser, FIBS, Atomic Force)
Chemical Mechanical Planarization Eqpt	IR Life-time Measurement
Post CMP Clean Tool	Film Thickness Monitoring
Wafer Marking	Liquid/Gas/Air/Dust Counter
Mark Reader	Particle Inspection
Back Grinder	Reflection Measuring
Bump Plating	Spectrophotometer
Tape Sticker/Peeler	Medium Current
Backside Etcher	Megasonic and Ultrasonic Cleaning System
Coater (Spin, Spray, Extrusion)	Metal Organic Chemical Vapor Deposition (MOCVD) Oxidation Furnace
Columnated Sputtering	Metal Organic Vapor Phase Epitaxy (MOVPE)
Compound Semiconductor Epitaxial Equipment Contact Aligner	Molecular Beam Epitaxy (MBE)
Developer	Plasma Enhanced Chemical Vapor Deposition (PECVD)
Diffusion Furnace	Plasma Etching
Dry Residue Removal	Plasma Stripper
Drying Equipment (Spin Dryer, Spin Rinse Dryer) (SRD)	Processing Equipment
E-Beam Direct Write	Projection Aligner
EUV	Projection Exposure System
Edge Bead Removal System	Proximity Aligner
Electroplating (ECD) Equipment	Rapid Thermal
Gas Etching	Reactive Ion Etch (RIE)
Hardening System, Resist Stabilizing Equipment	Resist Development Analyzer
High Current	Resist Processing Tools for Device Production
High Density Plasma Chemical Vapor Deposition (HDPCVD)	Resist Stabilizing Equipment
High Energy and Plasma Immersion	SCALPEL
High Pressure Jet Cleaner	Silicon Epitaxial Growing Equipment
Holographic Mask Aligner, and Other Exposure Tools for Device Production	Spin-on Deposition Tools
Mask Aligner	Spin Processor, Wafer (Photoresist) Track Step-and-Scan
IPA Dryer	Sputter Etching
Ion Beam Etching	Stepping Projection Aligner
Ion Beam Milling	Supercritical Cleaning System
Ion Milling	Surface Tension Dryer
Ionized Sputtering	Synchrotron Radiator (SR) Aligner
Laser Annealer	UV Photoresist Curing
Long Throw Sputtering	Vacuum Evaporation Equipment (Aluminum And Gold Evaporators) Wafer Brush/Scrubber
Low Pressure Chemical Vapor Deposition (LPCVD)	Wafer Peripheral Exposure Equipment
Magnetically Enhanced (RIE)	Wet Bench (Immersion, Spray, Recirculators), Sink
	Wet Etching Equipment
	Wet Spin Etcher
	X-ray Aligner
	X-Ray Stepper

## SEMICONDUCTOR MANUFACTURING – CLASSIFICATION GUIDELINES (cont'd.)

### SCHEDULE B2 Fixtures

Acid Neutralization System	Gas Monitoring System
Air Filtration System, HEPA Filters	Liquid Waste, Storage and Treatment
Air Handlers	System Nitrogen and Oxygen Lines
Air Recirculation Fans Central Utility	Process Cooling Tower
Building (CUB) for the Process	Process Cooling Water
Bulk Chemicals, Storage and Delivery	Scrubbers (Fume Scrubbers)
Systems	Sodium Hydroxide Storage Tanks
Bulk Gas, Storage and Delivery Systems	Specialty Gases, Storage and Delivery
Chillers	System
Clean Room HVAC Support System	Storage Bunkers for Corrosives, Flammables
Compressed Air Systems	and Solvents
Deionized Water Tanks and Piping	Sulfuric Acid Storage Tanks
Electrical Substations	Water Purification System
Gas and Chemical Vaults	

2. Fixturization from the clean room or service bay wall or floor that is directly related to the installation of machinery and equipment should also be reported on Schedule A-1 and valued in the same manner as the machinery and equipment.